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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/929,577	08/14/2001	Michael Ehlers	655.00963	9151

7590 02/07/2002

WOOD, PHILLIPS, VAN SANTEN, CLARK & MORTIMER
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CHICAGO, IL 60661

EXAMINER

FORD, JOHN K

ART UNIT	PAPER NUMBER
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3743

DATE MAILED: 02/07/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/929577

Applicant(s)

Ehlers et al.

Examiner

Ford

Art Unit

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- The MAILING DATE of this communication appears on the cover sheet with the correspondence address -

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on .
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) is/are withdrawn from consideration.
- 5) ☐ Claim(s) is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) is/are objected to.
- 8) ☐ Claims are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. .
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2
- 18) ☐ Interview Summary (PTO-413) Paper No(s)
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other:

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Applicant has cited 5 prior art documents, without translation, all of which appear to be highly relevant. Counsel has addressed some superficial comments to each one. The comments with respect to DE '728 are not understood (i.e. "The headers"... "extend axially away from one end of the corresponding header"). Perhaps there was a typographical error use of the word "connectors" rather ^{than} "headers"?

Translations or English language equivalents of this prior art would greatly facilitate meaningful examination and are requested. Among these references, DE 421²070 appears most relevant to claims 1-8 and 12, whereas DE 19724728 appears most relevant to claims 9-11.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

35 U.S.C. 102(b) or
Claims 1-7 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over JA 6-

273088 or JA 3-79994 or Nakaguro.

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Regarding claim 4, see the modification shown in Figure 7 of JA 6-273088. It is either disclosed in JA '088 or it would have been obvious from the teachings of JA '088 to duplicate the connection 7 to left header 4 into the right header 4 at the diagonally opposite ^{corner} ~~cover~~ in a manner analogous to what is shown in Figures 1 and 8 of JA '088.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 5, 6, 7, and 12 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP 10-197190 or Sasaki et al. (US 5,458,190) or DE 4212070.

In JP '190 the connector is element "11" best shown in Figures 1 and 4. First and second tubular headers 3 and 4 are shown. Flat tubes 2 extending between the headers are shown. As is well known in the condenser art, tubes 2 are ^{extruded} ~~extended~~ or fabricated. Sasaki is similar with "connector" element 7. In DE '070, both connectors 17a and 17b are relevant where they connect

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to header 11. As is well known all of these "connectors" couple external piping so that the heat exchanger becomes operative.

Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art as applied to claim 1 above, and further in view of Dudley (5,372,188) or JA 3-168590.

Dudley in Figures 2 and 3 discloses fabricated and extruded tubes in a parallel flow heat exchanger (Fig. 1). JA '590 teaches the same in Figures 2 and 6, respectively. To have used fabricated tubes or extruded tubes in the prior art such as taught by Dudley or JA '590 to increase heat transfer advantageously in the manner described by Dudley or JA '590 would have been obvious to one of ordinary skill.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over any of the prior art as applied to claim 1 above, and further in view of DE19527050 or Le Gauyer (5,275,236).

Rectangular connecting pipes, as opposed to what appear to be cylindrical connecting pipes in the prior art, would have been obvious to use where the external piping was of a rectangular configuration as appears to be shown in DE'050. Similarly, Le Gauyer teaches a rectangular connector in col. 3, lines 54-56.

To have used rectangular piping in the prior art to facilitate connection to rectangular external supply and return piping as well as to improve the joint would have been obvious to one of ordinary skill in the art.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Combined teachings of Bentz et al., DE 19724728 and JP 6-273088.

Bentz shows a radial flow fan, a plurality of heat exchangers 41, 42 and 47 (Fig. 4) around the fan. No details of the heat exchangers or their connections are shown.

De '728 teaches orienting headers 16 and 17 parallel to the axis of the fan 5, with flat tubes 7 perpendicular to the headers from front to back.

JP '088 in Figure 7 teaches a connector 7 into left header 4. It is believed that a similar connector at the diagonally opposite corner is impliedly or explicitly disclosed by that reference, when Figure 7 is viewed in the context of the disclosures of Figures 1 & 8 of JP '088.

To have used the Figure 7 heat exchanger of JP '088 in the Bentz system in place of any or all of heat exchangers 41, 42 and 47 would have been obvious, orienting the tubes and headers relative to the fan in the manner taught by DE'728, for the purpose of improving heat exchange, and facilitating connection to piping transporting fluids to and from the various heat exchangers.


Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art as applied to claims 9-11 above, and further in view of Rudny et al.

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Rudny et al. (Figs. 1 & 2) show that connections at both the front end and rear end of a fan shroud/heat exchanger (with three independent circuits) are known in the art. As shown in Figure 1 of Rudny this permits connections to be made easily without excessive interference, thereby reinforcing the above combination of Bentz, DE '728 and JP '088.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication should be directed to John Ford at telephone number (703) 308-2636.



John K. Ford
Primary Examiner

J. Ford

January 29, 2002

Attachment for PTO-948 (Rev. 03/01, or earlier)
6/18/01

The below text replaces the pre-printed text under the heading, "Information on How to Effect Drawing Changes," on the back of the PTO-948 (Rev. 03/01, or earlier) form.

INFORMATION ON HOW TO EFFECT DRAWING CHANGES

1. Correction of Informalities -- 37 CFR 1.85

New corrected drawings must be filed with the changes incorporated therein. Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and centered within the top margin. If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings **MUST** be filed within the **THREE MONTH** shortened statutory period set for reply in the Notice of Allowability. Extensions of time may **NOT** be obtained under the provisions of 37 CFR 1.136(a) or (b) for filing the corrected drawings after the mailing of a Notice of Allowability. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

2. Corrections other than Informalities Noted by Draftsperson on form PTO-948.

All changes to the drawings, other than informalities noted by the Draftsperson, **MUST** be made in the same manner as above except that, normally, a highlighted (preferably red ink) sketch of the changes to be incorporated into the new drawings **MUST** be approved by the examiner before the application will be allowed. No changes will be permitted to be made other than correction of informalities, unless the examiner has approved the proposed changes.

Timing of Corrections

Applicant is required to submit the drawing corrections within the time period set in the attached Office communication. See 37 CFR 1.85(a)

Failure to take corrective action within the set period will result in **ABANDONMENT** of the application.